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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/671,909

09/25/2003

Alexander Hahn

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06/16/2006

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EXAMINER

SCHINDLER, DAVID M

ART UNIT

PAPER NUMBER

2862

DATE MAILED: 06/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

Office Action Summary

Application No.

10/671,909

Applicant(s)

HAHN, ALEXANDER

Examiner

David Schindler

Art Unit

2862

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2,4-11 and 13 is/are rejected.
- 7) ☒ Claim(s) 3 and 12 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 31 March 2006 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date: _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date: _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. This action is in response to the communication filed 3/27/2006.

Claim Objections

2. Claim 6 is objected to because of the following informalities:

As to Claim 6,

It is noted to Applicant that this claim appears to have originally been dependent from claim 3. Please see the originally filed claims. However, this claim is now dependent from claim 4. This claim does not appear to contain a strikethrough of the number 3, along with the addition of the number 4, indicating that the claim dependency has changed. Please see the currently amended Claim 5. For the purpose of examination, the Examiner is assuming that the current dependency is correct.

Appropriate correction is required.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 10, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Shibata (5,925,953).

As to Claim 1,

Shibata discloses a first single-turn rotary encoder ((60) and (Column 2, Lines

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59-67)) arranged at one end of the shaft (19) and configured to sense the shaft's rotational position within a single revolution thereof ((Figure 1) and (Column 3, Lines 3-50)), the first single-turn rotary encoder being circumscribed by an outer periphery (Figure 1), a second rotary encoder unit for sensing the number of revolutions of the shaft, the second rotary encoder unit including i) a reduction gear linkage (25) drivable by the shaft and being arranged annularly around a portion of the shaft, the reduction gear linkage having an output element (26), ii) a rotary element (80) connected to the output element, the rotary element being located beyond the one end of the shaft but along a common axis therewith, iii) a second single-turn rotary encoder ((62) and (Column 2, Lines 59-67)) configured to sense the rotational position of the rotary element within a single revolution thereof, and iv) a connecting member (20) for drivingly connecting the output element of the reduction gear linkage to the rotary element, the connecting member extending around the outer periphery of the first single-turn rotary encoder ((Figure 1) and (Column 2, Lines 41-67) and (Column 3, Lines 1-50)).

As to Claim 2,

Shibata discloses driving motion applied by the shaft to the reduction gear linkage translates into a motion coaxial with motion of the shaft (Figure 1).

As to Claim 10,

Shibata discloses the first and second single-turn rotary encoder are arranged adjacent a shaft end of the shaft opposite to an input drive end of that shaft (Figure 1).

As to Claim 13,

Shibata discloses an evaluation unit which receives the output signals of the first and second rotary encoders and generates a common output signal (Figure 3).

Claim Rejections - 35 USC § 103

5. It is noted to Applicant that U.S. Pat. Pub. 2004/0100251 A1 to Lohberg is being used as an English translation of WO 2002/10689 A1 to Lohberg. All pages, paragraphs, lines, and figures mentioned with regard to the above reference come from U.S. Pat. Pub 2004/0100251 A1.

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 4 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (5,925,953) in view of Lohberg (WO 2002/10689 A1).

As to Claim 4,

Shibata discloses the first single-turn rotary encoder includes a first sensor.

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(Column 2, Lines 59-67) and a first magnetic rotor (60) coaxing therewith, the first magnetic rotor being arranged on an end face of the shaft (Figure 1).

Shibata does not disclose a first permanent magnet.

Lohberg discloses that besides permanent magnetic generator elements (encoder), ferromagnetic structured generator elements may be used as a generator wheel (Page 4, Paragraph [0067]).

It would have been obvious to a person of ordinary skill in the art to modify Shibata to replace the first magnetic rotor with a first permanent magnet given the above disclosure and teaching of Lohberg in order to generate a magnetic field.

As to Claim 6,

Shibata discloses the second single-turn rotary encoder includes a second sensor (Column 2, Lines 59-67) and a second magnetic rotor coaxing therewith, the second magnetic rotor being arranged on the rotary element (Figure 1).

Shibata does not disclose a second permanent magnet.

Lohberg discloses that besides permanent magnetic generator elements (encoder), ferromagnetic structured generator elements may be used as a generator wheel (Page 4, Paragraph [0067]).

It would have been obvious to a person of ordinary skill in the art to modify Shibata to replace the second magnetic rotor with a second permanent magnet given the above disclosure and teaching of Lohberg in order to generate a magnetic field.

9. Claims 5 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (5,925,953) in view of Lohberg (WO 2002/10689 A1) and in further view of Chaparala (2002/0167309).

As to Claim 5,

Shibata in view of Lohberg disclose as explained above.

Shibata in view of Lohberg does not disclose the first sensor includes a giant magneto-resistive sensor.

Chaparala discloses a magnetic sensor may include a giant magnetoresistance sensor or a flux sensing coil (Page 3, Paragraph [0034]).

It would have been obvious to a person of ordinary skill in the art to modify Shibata in view of Lohberg to include the first sensor includes a giant magneto-resistive sensor given the above disclosure and teaching of Chaparala in order to provide magnetic field detection using readily available components.

As to Claim 7,

Shibata in view of Lohberg does not disclose the second sensor includes a giant magneto-resistive sensor.

Chaparala discloses a magnetic sensor may include a giant magnetoresistance sensor or a flux sensing coil (Page 3, Paragraph [0034]).

It would have been obvious to a person of ordinary skill in the art to modify Shibata in view of Lohberg to include the second sensor includes a giant magneto-resistive sensor given the above disclosure and teaching of Chaparala in order to provide magnetic field detection using readily available components.

10. Claims 8 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (5,925,953) in view of Lohberg (WO 2002/10689 A1) and in further view of Matsuura et al. (herein referred to as "Matsuura") (2003/0056606 A1).

As to Claim 8,

Shibata in view of Lohberg discloses as explained above.

Shibata in view of Lohberg does not disclose a magnetic shield is provided between the first rotary encoder and the second rotary encoder, in order to at least partially magnetically uncoupled the first and second rotary encoders from one other.

Matsuura discloses the use of a shield plate (Page 5, Paragraphs [0055] – [0057]).

It would have been obvious to a person of ordinary skill in the art to modify Shibata in view of Lohberg to include a magnetic shield is provided between the first rotary encoder and the second rotary encoder, in order to at least partially magnetically uncoupled the first and second rotary encoders from one other given the above disclosure and teaching of Matsuura in order to eliminate an undesired influence brought about by magnetic flux leaking (Page 5, Paragraph [0064]).

As to Claim 9,

Shibata in view of Lohberg does not disclose the magnetic shield is arranged adjacent the rotary element.

Matsuura discloses the use of a shield plate (Page 5, Paragraphs [0055] – [0057]).

It would have been obvious to a person of ordinary skill in the art to modify Shibata in view of Lohberg to include the magnetic shield is arranged adjacent the rotary element given the above disclosure and teaching of Matsuura in order to eliminate an undesired influence brought about by magnetic flux leaking (Page 5, Paragraph [0064]).

11. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shibata (5,925,953) in view of Lohberg (WO 2002/10689 A1) in view of Nagano et al. (herein referred to as "Nagano") (4,853,632).

As to Claim 11,

Shibata in view of Lohberg disclose as explained above.

Shibata in view of Lohberg does not disclose the sensors of the first and the second single-turn rotary encoder are arranged on a common sensor carrier.

Nagano discloses the sensors of the first and the second single-turn rotary encoder are arranged on a common sensor carrier ((Figure 1) and (Column 3, Lines 20-29)).

It would have been obvious to a person of ordinary skill in the art to modify Shibata in view of Lohberg to include the sensors of the first and the second single-turn rotary encoder are arranged on a common sensor carrier given the above disclosure and teaching of Nagano in order to reduce the number of carriers needed and to therefore reduce the cost.

Allowable Subject Matter

12. Upon further consideration, the allowance of claims 1, 2, 4-11, and 13 is withdrawn in favor of the above rejections.

13. Claims 3 and 12 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

14. The following is an examiner's statement of reasons for allowance:

As to Claim 3,

The primary reason for the allowance of claim 3 is the inclusion of the connecting member includes an essentially U-shaped yoke. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

As to Claim 12,

The primary reason for the allowance of claim 12 is the inclusion of the common sensor carrier is formed, at least locally, from a magnetically shielded material, in order to magnetically uncouple the sensors of the first and second rotary encoders from one another. It is these features found in the claim, as they are claimed in the combination that has not been found, taught or suggested by the prior art of record, which makes this claim allowable over the prior art.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably


accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Schindler whose telephone number is (571) 272-2112. The examiner can normally be reached on M-F (8:00 - 5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward Lefkowitz can be reached on (571) 272-2180. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


David Schindler
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